

"Express Mail" Label No. EL769989892US
Date of Deposit April 20, 2001

PATENT
Attorney Docket No.: 18928-1-1

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By: Julie Taylor Clough

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of:

Takashi Kosaka, et al.

Application No.: Unassigned

Filed: Herewith

For: SYSTEM FOR MODIFYING THE
FUNCTIONALITY OF COMPILED
COMPUTER CODE AT RUN-TIME

Examiner: Unassigned

Art Unit: Unassigned

PRELIMINARY AMENDMENT

Assistant Commissioner for Patents
Washington, D.C. 20231

Sir:

Prior to examination of the above-referenced application, please enter the following
amendments and remarks.

IN THE CLAIMS:

Please cancel claims 1-10 and 13.

Please add claims 14-35.

Please amend claims 11 and 12 as follows:

11. A method for providing run-time modification of functionality in an
executable computer program that has a substitute reference address for one or more symbolic
references used in a source code version of the executable computer program, the method executing
on a computer system, the computer system including a processor and storage device, the method
including the steps of:

loading the executable computer program into the computer system;

loading a module that includes an item definition into the computer system; and
executing a process to associate the substitute reference address with the item
definition, wherein a pointer associated with the substitute reference address is modified to point to
the item.

12. The method of claim 11, wherein the method further comprises the steps of:
associating the substitute reference with the item definition by executing script
language instructions.

14. A computer-readable medium including instructions for converting a source
computer program into an executable object having symbol references that can be redirected at run-
time, the computer-readable medium including instructions for execution on a computer system, the
computer system including a processor and storage device, the computer system further including a
computer program having symbolic references to original definitions having original names, the
computer-readable medium including:

one or more instructions for identifying one or more of the original names;

one or more instructions for renaming one or more original names used in the source
computer program with new names;

one or more instructions for creating an association between the original names and
the new names so that symbolic references to the original names invoke a reference to the new
names; and

one or more instructions for creating executable code from the source computer
program, wherein the executable code uses the associations between the original names and the new
names.

15. The computer-readable medium of claim 14, further comprising
one or more instructions for storing information about the associations in a table
format.

16. The computer-readable medium of claim 15, further comprising
one or more instructions for causing a symbolic reference to reference an entry in the
table; and

one or more instructions for associating a pointer to an original definition with the entry.

17. The computer-readable medium of claim 14, wherein a compiler is used to compile the source computer program, the computer-readable medium further comprising one or more instructions for using information generated by the compiler to perform the step of identifying original names in the source computer program.

18. The computer-readable medium of claim 14, wherein a symbolic reference is to a data structure.

19. The computer-readable medium of claim 14, wherein a symbolic reference is to a program instruction.

20. The computer-readable medium of claim 14, wherein a symbolic reference is to a resource.

21. The computer-readable medium of claim 14, wherein a symbolic reference is to an object.

22. The computer-readable medium of claim 14, wherein a predetermined developer's environment is used to compile the source computer program, wherein the predetermined developer's environment includes utilities for generating information about symbolic references in the source computer program, the computer-readable medium further comprising one or more instructions for using information from one or more files to generate one or more auxiliary files that include information on original names; and one or more instructions for using the auxiliary file to compile an add-on module for execution in conjunction with the source computer program.

23. The computer-readable medium of claim 14, wherein the predetermined developer's environment provides for compiling the source computer program by using a linker that generates a .map file, the computer-readable medium further comprising

one or more instructions for using the .map file to derive a .def file that is included as at least a portion of the auxiliary file.

24. A computer-readable medium including instructions for providing run-time modification of functionality in an executable computer program that has a substitute reference for one or more symbolic references used in a source code version of the executable computer program, the computer-readable medium including instructions for execution on a computer system, the computer system including a processor and storage device, the computer-readable medium including one or more instructions for loading the executable computer program into the computer system;
one or more instructions for loading a module that includes an item definition into the computer system;
one or more instructions for executing a process to associate the substitute reference with the item definition; and
one or more instructions for associating the substitute reference with the item definition during execution of the executable computer program by concurrently executing script language instructions to control the associations.

25. A computer data signal embodied in a carrier wave including instructions for converting a source computer program into an executable object having symbol references that can be redirected at run-time, the computer data signal including instructions for execution on a computer system, the computer system including a processor and storage device, the computer system further including a computer program having symbolic references to original definitions having original names, the computer data signal including:

one or more instructions for identifying one or more of the original names;
one or more instructions for renaming one or more original names used in the source computer program with new names;
one or more instructions for creating an association between the original names and the new names so that symbolic references to the original names invoke a reference to the new names; and
one or more instructions for creating executable code from the source computer program, wherein the executable code uses the associations between the original names and the new names.

26. The computer data signal of claim 25, further comprising one or more instructions for storing information about the associations in a table format.

27. The computer data signal of claim 26, further comprising one or more instructions for causing a symbolic reference to reference an entry in the table; and one or more instructions for associating a pointer to an original definition with the entry.

28. The computer data signal of claim 25, wherein a compiler is used to compile the source computer program, the computer data signal further comprising one or more instructions for using information generated by the compiler to perform the step of identifying original names in the source computer program.

29. The computer data signal of claim 25, wherein a symbolic reference is to a data structure.

30. The computer data signal of claim 25, wherein a symbolic reference is to a program instruction.

31. The computer data signal of claim 25, wherein a symbolic reference is to a resource.

32. The computer data signal of claim 25, wherein a symbolic reference is to an object.

33. The computer data signal of claim 25, wherein a predetermined developer's environment is used to compile the source computer program, wherein the predetermined developer's environment includes utilities for generating information about symbolic references in the source computer program, the computer data signal further comprising one or more instructions for using information from one or more files to generate one or more auxiliary files that include information on original names; and

one or more instructions for using the auxiliary file to compile an add-on module for execution in conjunction with the source computer program.

34. The computer data signal of claim 25, wherein the predetermined developer's environment provides for compiling the source computer program by using a linker that generates a .map file, the computer data signal further comprising

one or more instructions for using the .map file to derive a .def file that is included as at least a portion of the auxiliary file.

35. A computer data signal embodied in a carrier wave including instructions for providing run-time modification of functionality in an executable computer program that has a substitute reference for one or more symbolic references used in a source code version of the executable computer program, the computer data signal including instructions for execution on a computer system, the computer system including a processor and storage device, the computer data signal including

one or more instructions for loading the executable computer program into the computer system;

one or more instructions for loading a module that includes an item definition into the computer system;

one or more instructions for executing a process to associate the substitute reference with the item definition; and

one or more instructions for associating the substitute reference with the item definition during execution of the executable computer program by concurrently executing script language instructions to control the associations.

CONCLUSION

New claims 14-35 are based on allowed claims in a related application. These claims essentially cast the method limitations of the allowed claims into "computer media" and "data signal" claims of the type permitted under the Patent Office "Training Materials" and, as such, should be immediately allowable.


PATENT

Claim 11 has been amended to recite a specific mechanism for associating an item with a "substitute reference address". Specifically, the present invention uses a pointer associated with the substitute reference address to redirect the program's access to the "item."

In view of the foregoing, Applicants believe all claims now pending in this Application are in condition for allowance. The issuance of a formal Notice of Allowance at an early date is respectfully requested.

If the Examiner believes a telephone conference would expedite prosecution of this application, please telephone the undersigned at 415-576-0200.

Respectfully submitted,


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